Fermilab

External Independent Review (EIR) Process

NOvA Collaboration Meeting

August 22, 2007

Agenda

- EIR Process
- NOvA's EIR Timeline
- CD-2/3 Elements and LOI
- Documents Required for EIR
- Lessons Learned

EIR Standard Operating Procedures
(Dated October 20, 2003)

Typical Timeline for Performance Baseline External Independent Review (timeline starts when review documents are received by OECM)

	Week 0	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
OECM Receives documents	◆								
EIR Draft Review plan is prepared and submitted for comment		⟷							
Program/ Project / Site provides comments			⟷						
EIR team develops Final Review Plan and adds specific Review Questions				⟷					
Site reviews questions and prepares for EIR					⟷				
On-site review ending with Outbrief to Project Team						⟷			
OECM transmits Draft EIR Report for factual accuracy review							⟷		
Program/ Projects submits factual accuracy comments								⟷	
OECM transmits Final EIR Report including Corrective Action Plan									⟷

Week 1

- Following receipt of the review documents, OECM, in conjunction with the EIR contractor, develops a draft EIR Review Plan. OECM provides the Project Team, the PMSO and/or Program support staff a draft of the EIR review plan for review and comment. The PMSO/Program is responsible for coordinating any comments.

Week 2

- At the end of Week 2, the PMSO and/or Program provides comments on the draft Review Plan, as well as provides suggestions, if any, for additional review elements

Week 3

- OECM finalizes the EIR Review Plan and provides it to the PMSO, Program, and Site Project Team. In general, the Final Review Plan will also include specific Review Questions that will need to be addressed at the on-site review. The purpose of the Review Questions is to obtain data and information needed to address Scope of Review lines of inquiry, but not provided in the site project documents.

Week 4

- The Site Project Team reviews the EIR Final Review Plan, including specific EIR team Review Questions to be addressed during the on-site review, and makes final preparations for the EIR.

Week 5

- The EIR Team conducts the on-site review, and concludes with an outbrief to the Site Project Team. Note: The PMSO/ Program are encouraged to arrange for a teleconference/ televideo connection to the site outbrief.

Week 6

- OECM issues the draft report to the PMSO and/or Program, and Site Project Team for a factual accuracy review.

Week 7

- The Program and Project Team reviews the draft EIR report and provides factual accuracy comments to OECM. The Program/Project Team should strictly limit comments to the factual content of the EIR report. Any disagreements with the specific Findings or Observations should be noted in the Corrective Action Plan.

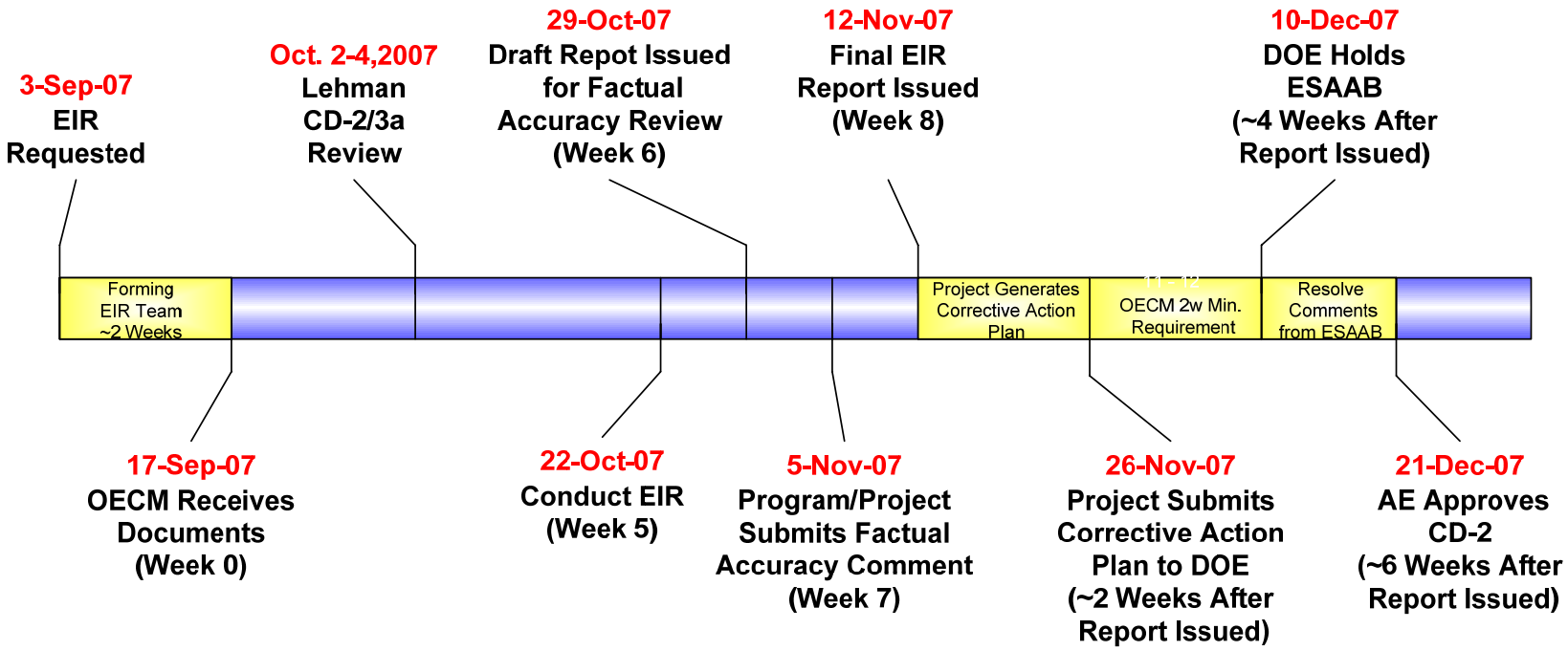
Week 8

- OECM incorporates comments, as appropriate, and issues the Final Report with recommended corrective actions to the PMSO and/or the Program, and the Site Project Team.

External Independent Review (EIR) Process Timeline

Best Guess

Updated (25-Jul-07)



Note:

- Text in Red indicates change from prior version
- Text in Gray indicates activity is complete

From: Tkaczyk, Steve [mailto:Steve.Tkaczyk@science.doe.gov]
Sent: Tuesday, October 03, 2006 9:57 AM
To: PROCARIO, MICHAEL< br> **Cc:** LEHMAN, DANIEL; TKACZYK, STEVE; Webster, Stephen
Subject: MINERVA Independent Project Review (IPR)

Mike,

As we discussed, I suggest that we have Fermilab prepare an assessment of where they are with MINERVA relative to the IPR review elements. I am attaching a section of our draft IPR procedure which addresses the review elements and suggested lines of inquiry for both CD-2 and CD-3 IPRs. I suggest they prepare a brief "scorecard" that states in a few sentences how each applicable element (both CD-2 and, in this case, CD-3A) has been addressed and list any reference documents (which would available by web link). We can then review this information along wit h the Director's Review and follow-up Mini-Review information. As necessary, we will interview Project Team members and Review team members by phone.

I will also engage the Site Off ice (FPD and others as appropriate) in this effort.

Any questions, let me know.

Steve Tkaczyk< /span>
Office of Project Assessment
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301-903-3288

CD-2/3 Elements and LOI

1. **Resource Loaded Schedule**. - For selected Work Breakdown Structure (WBS) elements (typically, those constituting significant cost and/ or risk), summarize the detailed basis for the cost estimate and schedule duration. Assess the method of estimation and the strengths/weaknesses of the cost and schedule estimates for each WBS element reviewed.
2. **Key Project Cost and Schedule Assumptions**. - Identify and assess key cost and schedule assumptions and evaluate the reasonableness of these assumptions as related to the quality of the cost and schedule estimates for each WBS. Assess cost and schedule contingency and other cost and schedule factors related to TPC and the project completion schedule. Ensure that the TPC and project completion date incorporates all activities necessary to successfully complete the project.
3. **Critical Path** - Review the Critical Path schedule and assess whether the Critical Path is reasonably defined and whether the schedule is integrated and reflects reasonable schedule durations.
4. **Funding Profile** - Assess whether the project funding profile is consistent with the resource loaded schedule.
5. **Work Breakdown Structure (WBS) / Dictionary** - Assess whether the WBS incorporates all project work, and whether it represents a reasonable breakdown of the project work scope. Assess whether the resource loaded schedule is consistent with WBS for the project work scope. Assess completeness of the WBS Dictionary

CD-2/3 Elements and LOI (continued)

6. **Risk Management Plan/Risk Assessment** - Review the approach used to identify project risks and assess adequacy of this approach. Assess whether risks have been quantified based on the probability and consequence of occurrence, and have been properly classified as high, medium, and low. Assess whether all appropriate risk mitigation actions have been adequately addressed in the determination of cost and schedule contingency.
7. **Basis of Design** - Evaluate adequacy of preliminary design including adequacy of drawings and specifications, and assess whether they are consistent with system functions and requirements. Assess whether all safety structures, systems, and components are incorporated into the preliminary design.
8. **Design Review** - Review results of the preliminary design review and assess the adequacy of the review. Determine whether additional work identified in the design review has been incorporated into the Performance Baseline as appropriate.
9. **System Functions and Requirements** - Assess whether system requirements are derived from and consistent with Mission Need. Assess whether "design to" functions and requirements are complete and have a sound technical basis. Assessment of requirements should include safety and external requirements such as permits, licenses, and regulatory approvals. Assess whether the CD-4 (i.e. project completion) activities are clearly identified in the Requirements document, and whether these activities are quantified and measurable, or can otherwise be reasonably determined as complete.
10. **Hazards Analysis** - Evaluate the quality of the Hazard Analysis and assess whether all scope, schedule, and costs necessary for safety are incorporated into the baseline. Assess the Hazards Analysis process, including the use of internal and external safety reviews.

CD-2/3 Elements and LOI (continued)

11. **Value Management/Engineering** - Assess the applicability of Value Management/Engineering, and whether a Value Management/Engineering analysis has been performed with results being incorporated into the baseline. Also provide an assessment of the Value Management/Engineering process for this project.
12. **Project Controls/Earned Value Management System** - Assess whether all project control systems and reporting requirements will be in place prior to CD-2. For projects where Earned Value Management System is not required, assess the adequacy of an alternate project control system for monitoring, controlling and reporting project cost and schedule performance.
13. **Project Execution Plan** - Review the Project Execution Plan and determine if it reflects and supports the way the project is being managed, is consistent with the other project documents, and establishes a plan for successful execution of the project.
14. **Start-up Test Plan** - Assess whether the start-up test plan identifies the acceptance and operational system tests required to demonstrate that system meets design operational specifications, and safety requirements. Review key tests to ensure that sufficient description is provided to estimate cost and schedule durations associated with these tests.
15. **Acquisition Strategy** - Review the Acquisition Strategy to determine if it is consistent with the way the project is being executed. Evaluate any changes from CD-1 that may impact whether the current strategy represents best value to the government.
16. **Integrated Project Team** - Assess whether the project management staffing level is appropriate, and determine if appropriate disciplines are included in the Integrated Project Team. Identify any deficiencies in the Integrated Project Team that could hinder successful execution of the project.

Required Documentation

- Detailed Resource Loaded Schedule
- Detailed Cost Estimate
- System Functions and Requirements Document (Design Criteria)
- Results of and Responses to Site Preliminary Design Review
- Preliminary Design Drawings
- Project Execution Plan
- Start-up Test Plan (as appropriate)
- Hazards Analysis
- Risk Management Plan/Assessment
- Acquisition Strategy
- Value Management/Engineering Report
- WBS/Dictionary
- Funding Profile

Lessons Learned: people with prior experience

- Mark Reichanadter, SLAC/LCLS
- Craig Whitely and Jim Fulton, PNNL/PSF
- Greg Bock, Fermilab/NuMI
- Bill Freeman, Fermilab/DZero